

Short Reports

Socialization, Awareness, and the Electrodermal Response to Deception and Self-Disclosure

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Poorly socialized young adult males have been found to give smaller skin conductance responses (SCRs) to both physical and certain social (i.e., deception) stressors than their more highly socialized counterparts. This study examines whether these differences are dependent on the subject's awareness that his physiological responses are being recorded. Fifteen subjects attempted to deceive a polygraph examiner both before (unaware) and during (aware) a polygraph test. Fifteen other subjects made truthful denials to the examiner's questions. All 30 subjects were also asked a series of biographical questions as part of an interview in the unaware condition. Under both aware and unaware conditions, high-socialization (Socialization scale of the California Psychological Inventory) subjects gave larger SCRs when deceiving than did low-socialization subjects. They also gave larger SCRs than low-socialization subjects when disclosing significant personal information but did not differ electrodermally when answering routine information questions. Awareness of physiological monitoring apparently does not mediate the finding that highly socialized subjects are markedly aroused and low socialization subjects little aroused by stress.

Poorly socialized adult males have been found to give smaller skin conductance responses (SCRs) to both physical (Waid, 1976a) and certain social (Waid, Orne, & Wilson, 1979) stressors than their more highly socialized counterparts. These differences are consistent with predictions based on the theory that poorly socialized behavior develops as the result of insufficient physiological arousal in response to and in anticipation of stress, particularly punishment (Cleckley, 1964; Lykken, 1957; Waid, 1976b). These electrodermal differences might be due to

innate differences in neurotransmitter functioning (cf. Mawson & Mawson, 1977) or to some other differences in brain function. Alternatively, they might also be due to acquired cognitive or attitudinal mechanisms (cf. Hare, 1978). Several possible cognitive-perceptual mediators have been discounted as possible explanations of these differences (Waid, 1976a). The effect of one possible cognitive mechanism—awareness that physiological responses are being monitored—, however, has not been investigated.

When poorly socialized individuals are aware that their physiological responses are being scrutinized, they may exert more control over their responsivity. Thus, in the unaware condition, they might be just as responsive as more highly socialized people. Or, highly socialized subjects may be inordinately aroused by the awareness that their responses are being scrutinized. In the unaware condition, they might be just as hyporesponsive as undersocialized subjects. Alternatively, awareness may have no such differential effects. A study of the physiological detection of deception provided a convenient context for examining this question.

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Method

Subjects

Subjects were 30 male college students, age 18–28 years, who volunteered to participate in a polygraph-test study.

Procedures

Introduction. Experimenter 1 induced half of the subjects to memorize a list of "code words" and to subsequently attempt to deceive a polygraph examiner about these activities. The remaining subjects learned no code words but were instructed that their task was to convince the polygraph examiner of their "innocence" regarding code words.¹ Each subject was then conducted to the polygraph laboratory by Experimenter 3.

Awareness manipulation. The examiner instructed the subject to sit in the padded recliner chair situated next to a desk on which rested a Stoelting field polygraph. "This is a polygraph," the examiner said. "Let me show you what happens when a subject is attached." The examiner then attached a blood pressure cuff, respiration belt, and several palmar electrodes that appeared to terminate in the Stoelting polygraph next to the subject. Two of the palmar electrodes, however, unobtrusively terminated in a Beckman polygraph in the next room. "Now, see this pen here?" the examiner said, turning on the polygraph. "I want you to take a deep breath . . . Now the machine is measuring and recording your emotional response. I'm going to stimulate you later on with a control series of questions and the machine will measure and record your emotional responses." The examiner turned off the Stoelting polygraph and continued: "But, before we go any further, I would like to get some background information from you to kind of get to know you. What is your full name?" The examiner continued through a series of 22 interview questions (see below).

Deception: Unaware condition. The examiner briefly reiterated that the polygraph would be recording the subject's "involuntary" responses while he was asked a control series of questions. "But first," the examiner said, "I would like to review some of the questions with you now, the important questions, the ones pertaining to the issue we are trying to resolve, the suspicion about you being a courier." Two questions were then asked:

(a) a critical one requiring a lie on the part of "guilty" subjects, "Are you carrying critical code words?" and (b) a noncritical one that, although related to the issues of interest, could be answered "no" truthfully by both "guilty" and "innocent" subjects, "Have you been given any special training to defeat this test?" The noncritical question, known not to involve deception, since no subject had received any special training, served as an experimental control for the subject's general responsivity.

Deception: Aware condition. The examiner then gave the subject final instructions concerning the polygraph test, turned on the Stoelting polygraph and conducted a "lie detection" test that included the two questions asked in the unaware condition.

Questionnaires. Subsequently, Experimenter 3 had the subject complete the Socialization scale of the California Psychological Inventory (CPI; Gough, 1964), which was identified to the subject only as CPI Scale VII. Finally, Experimenter 4 conducted a postexperimental interview. No subjects expressed any awareness that physiological recording had taken place in the unaware condition.

Data analysis. Normative data (Gough, 1964) previously used (Waid, 1976) suggest that for males a critical cut-off point for predicting antisocial tendencies is a score of 31–32 on the CPI Socialization scale. Ten subjects scored 32 or below, and these comprised the low-socialization group. The mean of the remaining 20 subjects in the high-socialization group (39.0) is virtually identical to that of the "highs" in Waid (1976), ($M = 39.8$). Four of the low-socialization subjects were in the deceptive condition, and six were in the truthful condition. Eleven of the high-socialization subjects were in the deceptive condition, and nine were in the truthful condition. Amplitude of the SCR was scored as the change in conductance beginning in a period from 1.5 sec following stimulus onset to onset of the next stimulus (interview and unaware deception condition) or to 9 sec following stimulus onset (aware deception condition).

For each deception condition (unaware and aware) a $2 \times 2 \times 2$ (Deceptive or Truthful

¹ The results of the subsequent polygraph tests were the subject of a previous report (Waid, Orne, & Wilson, 1979). Technical details (e.g., those concerning skin conductance apparatus) are available in that article.

× Socialization Level × Question Type) analysis of variance for unequal *ns* with repeated measures on the last factor was computed. For analysis of the interview data, the most closely related questions were grouped to form the following eight categories of question (examples in parentheses): *routine information* ("What is your full name?"); *personal* ("Are you single, married, widowed, or divorced?"); *health* ("What is your physical condition?"); *religion* ("When you were a child, did you have religious training?"); *social affect* ("In your entire life who do you like the most?"); *general affect* ("What's the worst thing that ever happened to you?"); *psychiatric* ("Have you ever seen a doctor for your nerves?"); and *illegal conduct* ("Have you ever smoked pot?").

Results

Skin Conductance Response to Deception

Unaware condition. The main effect of socialization, $F(1, 26) = 6.05$, $p < .025$, and the interaction of group (deceptive or truthful) with type of question, $F(1, 26) = 4.58$, $p < .05$, were both significant. The main hypothesis of the present study, however, must be tested via a priori individual comparisons. Relevant comparisons were made using *t* tests for the differences among several means (Bruning & Kintz, 1977), adopting the .05 significance level as a criterion.

Only the high-socialization deceptive subjects gave a significantly larger SCR to the critical than to the noncritical question (Table 1). In addition, the SCR of these subjects to the critical questions was significantly larger than the respective SCRs of either low-socialization deceptive subjects, who were lying to the question, or high-socialization subjects, who made a truthful denial. The high-socialization deceptive subjects also gave larger SCRs to the noncritical question than did the low-socialization deceptive subjects. In contrast, the low-socialization deceptive subjects did not respond significantly more when lying than when making a truthful denial and responded no more to either type of question than low-socialization subjects who made truthful denials to both questions.

Aware condition. The main effect of socialization, $F(1, 26) = 7.90$, $p < .01$, and the interaction of group (deceptive or truthful) with type of question, $F(1, 26) = 6.81$,

Table 1

Mean Skin Conductance Response^a of High- and Low-Socialization Groups to Several Types of Questions

Question	High socialization	Low socialization
Deception (unaware)		
Deceptive group		
Critical	.86	.22
Noncritical	.54	.13
Truthful group		
Critical	.38	.26
Noncritical	.50	.27
Deception (aware)		
Deceptive group		
Critical	1.02	.48
Noncritical	.49	.15
Truthful group		
Critical	.48	.00
Noncritical	.25	.02
Interview questions		
Routine information	.48	.42
Personal	.64	.42
Health	.63	.39
Religion	.38	.22
Social affect	.63	.55
General affect	.85	.57
Psychiatric	.43	.49
Illegal conduct	1.11	.73

^a Micromhos/cm² specific conductance.

$p < .025$, were both significant. Individual comparisons of means indicated that the high-socialization deceptive subjects again gave a significantly larger SCR to the critical than to the noncritical question. They also gave a significantly larger SCR than either low-socialization deceptive or high-socialization truthful subjects gave to the critical question (Table 1). On this test, however, low-socialization deceptive subjects gave larger SCRs to the critical question than they did to the noncritical question. Their SCRs were also larger than those the low-socialization truthful subjects gave to the critical question.

Interview

Verbal responses. High- ($n = 20$) and low-socialization ($n = 10$) groups did not differ in their disclosure of personal information. Only one question approached a significant difference between groups: nine of 10 low-

socialization subjects admitted that they smoked marijuana whereas only 11 of 20 high-socialization subjects did so, $\chi^2(1) = 2.27$, $p < .20$.

Skin conductance responses. As predicted, the two socialization groups did not differ ($t = .64$) in the amplitude of the SCR to routine questions (Table 1).² Although both groups showed significantly larger responses to the general affect and illegal conduct questions than to the routine questions, the high-socialization subjects gave, as predicted, significantly larger SCRs to these rather intrusive question than did the low-socialization subjects ($t = 2.47$ and $t = 1.83$, respectively). Since the high and low groups tended to differ in their answers to the question about marijuana, this question was also analyzed separately. The 11 high-socialization subjects who disclosed smoking marijuana gave a significantly larger SCR to the question than did the 9 low-socialization subjects who made the same disclosure ($t = 2.61$). The high-socialization subjects also showed significantly larger SCRs than the low-socialization subjects to the health ($t = 2.50$) questions.

Discussion

Less socialized subjects gave smaller SCRs to deception and to relatively intrusive personal questions not involving deception than more highly socialized subjects, even when apparently unaware that their physiological responses were being recorded. High- and low-socialization groups did not differ, how-

ever, in their SCRs to routine interview questions.

Although in any laboratory study suspicion might exist that monitoring was taking place, the present procedures, in which a recording apparatus next to the subject was used at certain times, appeared successful in making the actual recordings (which were made even when this apparatus was not operating) quite unobtrusive.

Replication of the reduced SCR to social stress among low-socialization subjects under "unaware" conditions strengthens the view that such reduced arousal plays an important role in their social conduct. Awareness of physiological monitoring apparently does not mediate the finding that highly socialized subjects are markedly aroused and low-socialization subjects little aroused by stress.

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² Since subjects were not instructed to deceive during the interview, all 10 low-socialization subjects were compared with all 20 high-socialization subjects. Since the only explicit prediction concerned individual groups of questions rather than the overall interview, these results were evaluated by t tests. T tests for independent groups or for correlated means were used as appropriate. Since there were fewer low- than high-socialization subjects, it is important to note that the standard deviations of the two groups were similar. Thus, the data meet the assumption of homogeneity of variance and are appropriate for t tests despite the unequal n s (Senter, 1969).